

WATER QUALITY CRITERIA SUMMARY¹

The concentration for each compound listed in Table 20 is a criterion not to be exceeded in waters of the state in order to protect aquatic life and human health. All values are expressed as micrograms per liter ($\mu\text{g/L}$) except where noted. Compounds are listed in alphabetical order with the corresponding designations as to whether EPA has identified it as a priority pollutant and a carcinogen, aquatic life freshwater acute and chronic criteria, aquatic life marine acute and chronic criteria, human health water & organism and fish consumption only criteria, and Drinking Water Maximum Contaminant Level (MCL). The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4 days), and that these criteria should not be exceeded more than once every three (3) years.

Compound Name (or Class)	Prior ity Pollu tant	Carcinogen	Concentration in Micrograms Per Liter for Protection of Aquatic Life				Concentration in Units Per Liter for Protection of Human Health		
					Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion
									Fish Consumption Only
ACENAPTHENE	Y	N							
ACROLEIN	Y	N						320ug	780ug
ACRYLONITRILE	Y	Y						0.058ug**	0.65ug**
ALDRIN	Y	Y	3			1.3		0.074ng**	0.079ng**
ALKALINITY	N	N		20,000					
AMMONIA	N	N	CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT USEPA JANUARY 1985 (Fresh Water) CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT USEPA APRIL 1989 (Marine Water)						
ANTIMONY	Y	N						146ug	45,000ug
ARSENIC	Y	Y						2.2ng**	17.5ng**
ARSENIC (PENT)	Y	Y							0.05mg
ARSENIC (TRI)	Y	Y	360	190	69	36			
ASBESTOS	Y	Y						30K f/L**	
BARIUM	N	N						1mg	1.0mg
BENZENE	Y	Y						0.66ug**	40 ug**
BENZIDINE	Y	Y						0.12ng	0.53ng**
BERYLLIUM	Y	Y						6.8ng**	117ng**
BHC	Y	N							
CADMIUM	Y	N	3.9+	1.1+	43	9.3		10ug	0.010mg
CARBON TETRACHLORIDE	Y	Y						0.4ug**	6.94ug**
CHLORDANE	Y	Y	2.4	0.0043	0.09	0.004		0.46ng**	0.48ng**
CHLORIDE	N	N	860 mg/L	230 mg/L					
CHLORINATED BENZENES	Y	Y						488 ug	
CHLORINATED NAPHTHALENES	Y	N							
CHLORINE	N	N	19	11	13	7.5			
CHLOROALKYL ETHERS	Y	N							
CHLOROETHYL ETHER (BIS-2)	Y	Y						0.03 ug	1.36 ug**

TABLE 20
WATER QUALITY CRITERIA SUMMARY (Continued)

Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter for Protection of Aquatic Life				Concentration in Units Per Liter for Protection of Human Health		
					Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
			Fresh Acute Criteria	Fresh Chronic Criteria					
CHLOROFORM	Y	Y					0.19ug**	15.7ug**	
CHLOROISOPROPYL ETHER (BIS-2)	Y	N					34.7ug	4.36mg	
CHLOROMETHYL ETHER (BIS)	N	Y					0.00000376ng* *	0.00184ug**	
CHLOROPHENOL 2	Y	N							
CHLOROPHENOL 4	N	N							
CHLOROPHOXY HERBICIDES (2,4,5,-TP)	N	N					10ug		
CHLOROPHOXY HERBICIDES (2,4-D)	N	N					100ug		
CHLORPYRIFOS	N	N	0.083	0.041	0.011	0.0056			
CHLORO-4 METHYL-3 PHENOL	N	N							
CHROMIUM (HEX)	Y	N	16	11	1,100	50	50ug		0.05mg
CHROMIUM (TRI)	N	N	1,700.+	210.+			170mg	3,433mg	0.05mg
COPPER	Y	N	18.+	12.+	2.9	2.9			
CYANIDE	Y	N	22	5.2	1	1	200ug		
DDT	Y	Y	1.1	0.001	0.13	0.001	0.024ng**	0.024ng**	
(TDE) DDT METABOLITE	Y	Y							
(DDE) DDT METABOLITE	Y	Y							
DEMETON	Y	N		0.1		0.1			
DIBUTYLPHthalATE	Y	N					35mg	154mg	
DICHLOROBENZENES	Y	N					400ug	2.6mg	
DICHLOROBENZIDINE	Y	Y					0.01ug**	0.020ug**	
DICHLOROETHANE 1,2	Y	Y					0.94ug**	243ug**	
DICHLOROETHYLENES	Y	Y					0.033ug**	1.85ug**	
DICHLOROPHENOL 2,4	N	N					3.09mg		
DICHLOROPROPANE	Y	N							
DICHLOROPROPENE	Y	N					87ug	14.1mg	
DIELDRIN	Y	Y	2.5	0.0019	0.71	0.0019	0.071ng**	0.076ng**	
DIETHYLPHthalATE	Y	N					350mg	1.8g	
DIMETHYL PHENOL 2,4	Y	N							
DIMETHYL PHTHALATE	Y	N					313mg	2.9g	
DINITROTOLUENE 2,4	N	Y					0.11ug**	9.1ug**	
DINITROTOLUENE	Y	N					70ug	14.3mg	

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Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter for Protection of Aquatic Life				Concentration in Units Per Liter for Protection of Human Health		
			Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
DINITROTOLUENE	N	Y							
DINITRO-O-CRESOL 2,4	Y	N					13.4	765ug	
DIOXIN (2,3,7,8-TCDD)	Y	Y					0.000013ng**	0.000014ng**	
DIPHENYLHYDRAZINE	Y	N					42ng**	0.56ug**	
DIPHENYLHYDRAZINE 1,2	Y	N							
DI-2-ETHYLHEXYL PHTHALATE	Y	N					15mg	50mg	
ENDOSULFAN	Y	N	0.22	0.056	0.034	0.0087	74ug	159ug	
ENDRIN	Y	N	0.18	0.0023	0.037	0.0023	1ug		0.0002mg
ETHYLBENZENE	Y	N					1.4mg	3.28mg	
FLUORANTHENE	Y	N					42ug	54ug	
GUTHION	N	N		0.01		0.01			
HALOETHERS	Y	N							
HALOMETHANES	Y	Y					0.19ug**	15.7ug**	
HEPTACHLOR	Y	Y	0.52	0.0038	0.053	0.0036	0.28ng**	0.29ng**	
HEXAChLOROETHANE	N	Y					1.9ug	8.74ug	
HEXAChLOROBENZENE	Y	N					0.72ng**	0.74ng**	
HEXAChLOROBUTADIENE	Y	Y					0.45ug**	50ug**	
HEXAChLOROCYCLOHEXANE (LINDANE)	Y	Y	2	0.08	0.16				0.004mg
HEXAChLOROCYCLOHEXANE-ALPHA	Y	Y					9.2ng**	31ng**	
HEXAChLOROCYCLOHEXANE-BETA	Y	Y					16.3ng**	54.7ng**	
HEXAChLOROCYCLOHEXANE-GAMA	Y	Y					18.6ng**	62.5ng**	
HEXAChLOROCYCLOHEXANE-TECHNICAL	Y	Y					12.3ng**	41.4ng**	
HEXAChLOROCYCLOPENTADIE NE	Y	N					206ug		
IRON	N	N		1,000			0.3mg		
ISOPHORONE	Y	N					5.2mg	520mg	
LEAD	Y	N	82.+	3.2+	140	5.6	50ug		0.05mg
MALATHION	N	N		0.1		0.1			
MANGANESE	N	N					50ug	100ug	
MERCURY	Y	N	2.4	0.012	2.1	0.025	144ng	146ng	0.002mg
METHOXYCHLOR	N	N		0.03		0.03	100ug		0.1mg
MIREX	N	N		0.001		0.001			
MONOCHLOROBENZENE	Y	N					488ug		

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Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter for Protection of Aquatic Life				Concentration in Units Per Liter for Protection of Human Health		
					Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
			Fresh Acute Criteria	Fresh Chronic Criteria					
NAPHTHALENE	Y	N							
NICKEL	Y	N	1,400.+	160+	75	8.3	13.4ug	100ug	
NITRATES	N	N					10mg		10mg
NITROBENZENE	Y	N					19.8mg		
NITROPHENOLS	Y	N							
NITROSAMINES	Y	Y					0.8ng**	1,240ng**	
NITROSODIBUTYLAMINE N	Y	Y					6.4ng**	587ng**	
NITROSODIETHYLAMINE N	Y	Y					0.8ng**	1,240ng**	
NITROSODIMETHYLAMINE N	Y	Y					1.4ng**	16,000ng**	
NITROSODIPHENYLAMINE N	Y	Y					4,900ng**	16,100ng**	
NITROSOPIRROLIDINE N	Y	Y					16ng**	91,900ng**	
PARATHION	N	N	0.065	0.013					
PCB's	Y	Y	2	0.014	10	0.03	0.079ng**	0.079ng**	
PENTACHLORINATED ETHANES	N	N							
PENTACHLOROBENZENE	N	N					74ug	85ug	
PENTACHLOROPHENOL	Y	N	***20	***13	13		1.01mg		
PHENOL	Y	N					3.5mg		
PHOSPHORUS ELEMENTAL	N	N				0.1			
PHthalate Esters	Y	N							
POLYNUCLEAR AROMATIC HYDROCARBONS	Y	Y					2.8ng**	31.1ng**	
SELENIUM	Y	N	260	35	410	54	10ug		0.01mg
SILVER	Y	N	4.1+	0.12	2.3		50ug		0.05mg
SULFIDE HYDROGEN SULFIDE	N	N		2		2			
TETRACHLORINATED ETHANES	Y	N							
TETRACHLOROBENZENE 1,2,4,5	Y	N					38ug	48ug	
TETRACHLOROETHANE 1,1,2,2	Y	Y					0.17ug**	10.7ug**	
TETRACHLOROETHANES	Y	N							
TETRACHLOROETHYLENE	Y	Y					0.8ug**	8.85ug**	
TETRACHLOROPHENOL 2,3,5,6	Y	N							
THALLIUM	Y	N					13ug	48ug	
TOLUENE	Y	N					14.3mg	424mg	
TOXAPHENE	Y	Y	0.73	0.0002	0.21	0.0002	0.71ng**	0.73ng**	0.005mg
TRICHLORINATED EtHANES	Y	Y							
TRICHLOROETHANE 1,1,1	Y	N					18.4mg	1.03g	
TRICHLOROETHANE 1,1,2	Y	Y					0.6ug**	41.8ug**	
TRICHLOROETHYLENE	Y	Y					2.7ug**	80.7ug**	

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Compound Name (or Class)	Priority Pollutant	Carcinogen	Concentration in Micrograms Per Liter for Protection of Aquatic Life				Concentration in Units Per Liter for Protection of Human Health		
			Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.
TRICHLOROPHENOL 2,4,5	N	N					2,600ug		
TRICHLOROPHENOL 2,4,6	Y	Y					1.2ug**	3.6ug**	
VINYL CHLORIDE	Y	Y					2ug**	525ug**	
ZINC	Y	N	120+	110+	95	86			

MEANING OF SYMBOLS:

g = grams M.C.L. = Maximum Contaminant Level

mg = milligrams + = Hardness Dependent Criteria (100 mg/L used).

The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

$$\text{CMC} = (\exp(m_A * [\ln(\text{hardness})] + b_A)) * \text{CF}$$

$$\text{CCC} = (\exp(m_C * [\ln(\text{hardness})] + b_C)) * \text{CF}$$

<u>Chemical</u>	<u>m_A</u>	<u>b_A</u>	<u>m_C</u>	<u>b_C</u>
<u>Cadmium</u>	1.128	-3.828	0.7852	-3.49
<u>Chromium III</u>	0.819	3.688	0.819	1.561
<u>Copper</u>	0.9422	-1.464	0.8545	-1.465
<u>Lead</u>	1.273	-1.46	1.273	-4.705
<u>Nickel</u>	0.846	3.3612	0.846	1.1645
<u>Silver</u>	1.72	-6.52		
<u>Zinc</u>	0.8473	0.8604	0.8473	0.7614

TABLE 20
WATER QUALITY CRITERIA SUMMARY (Continued)

ug	=	micrograms	*	=	Insufficient data to develop criteria; value presented is the L.O.E.L – Lower Observed Effect Level.
ng	=	nanograms	**	=	Human health criteria for carcinogens reported for three risk levels. Value presented is the 10-6 risk level, which means the probability of one concern case per million people at the stated concentration.
pg	=	picograms	***	=	pH Dependent Criteria (7.8 pH used).
f	=	fibers			
Y	=	Yes			
N	=	No			

1 = Values in Table 20 are applicable to all basins.

Water and Fish Ingestion

Values represent the maximum ambient water concentration for consumption of both contaminated water and fish or other aquatic organisms.

Fish Ingestion

Values represent the maximum ambient water concentrations for consumption of fish or other aquatic organisms